Jan. 13, 1959 G. L. JORGENSEN ET AL 2,868,053

MOTOR OPERATED NUT RUNNER PROVIDED WITH MAGAZINE STORAGE MEANS

Filed May 28, 1958 3 Sheets-Sheet 1

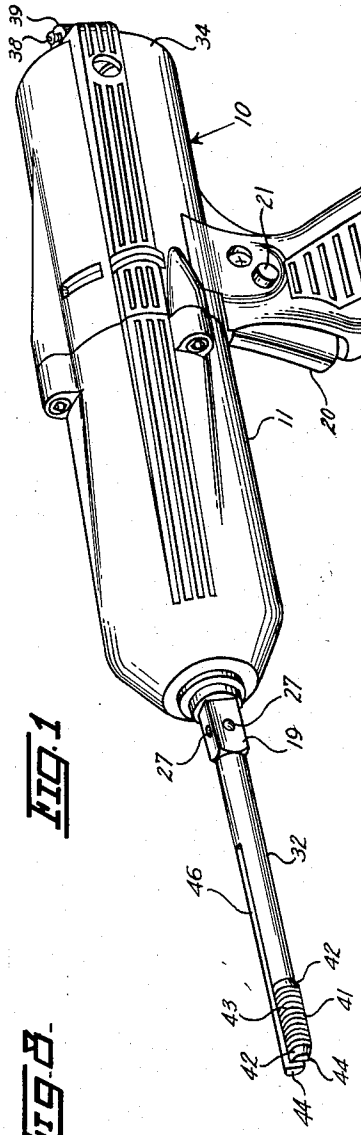


FIG. 1

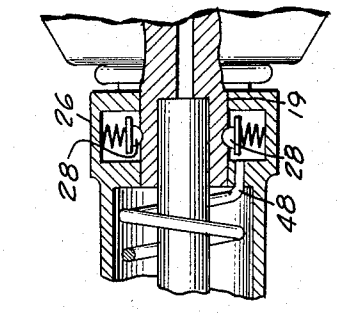


FIG. 3

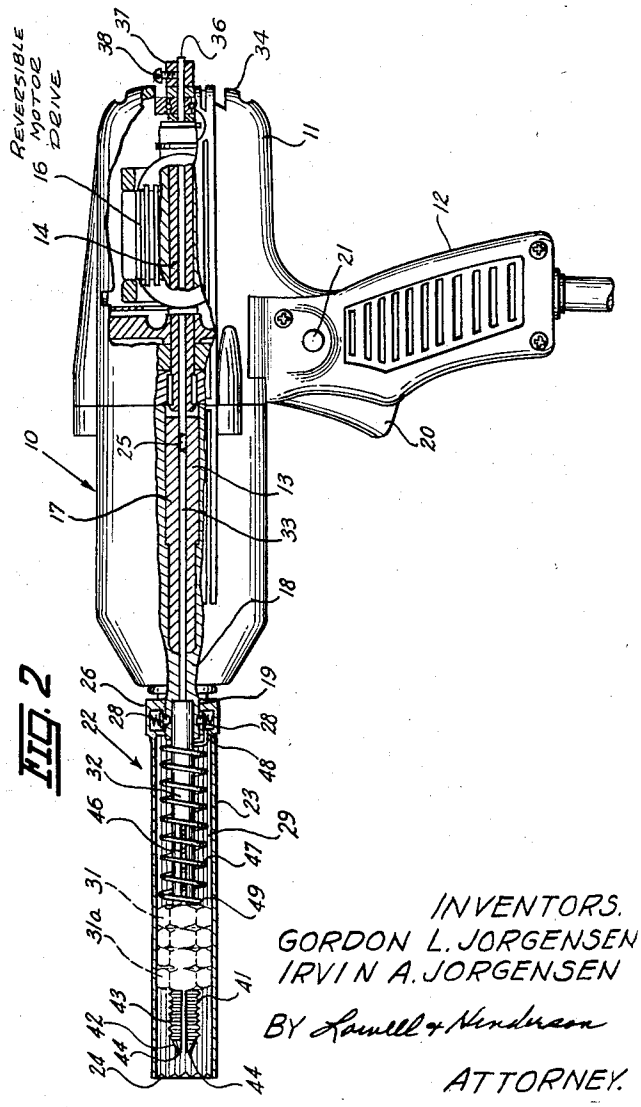


FIG. 2

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FIG. 5

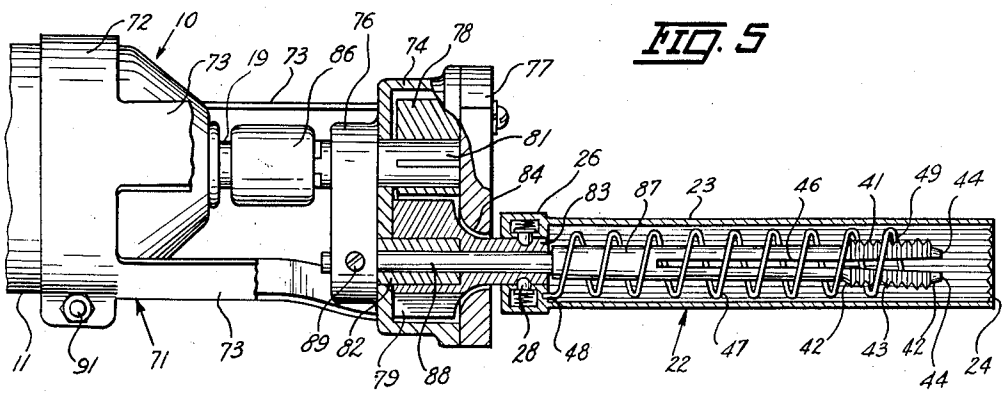


FIG. 3

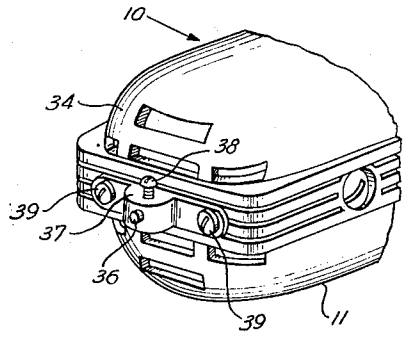


FIG. 4

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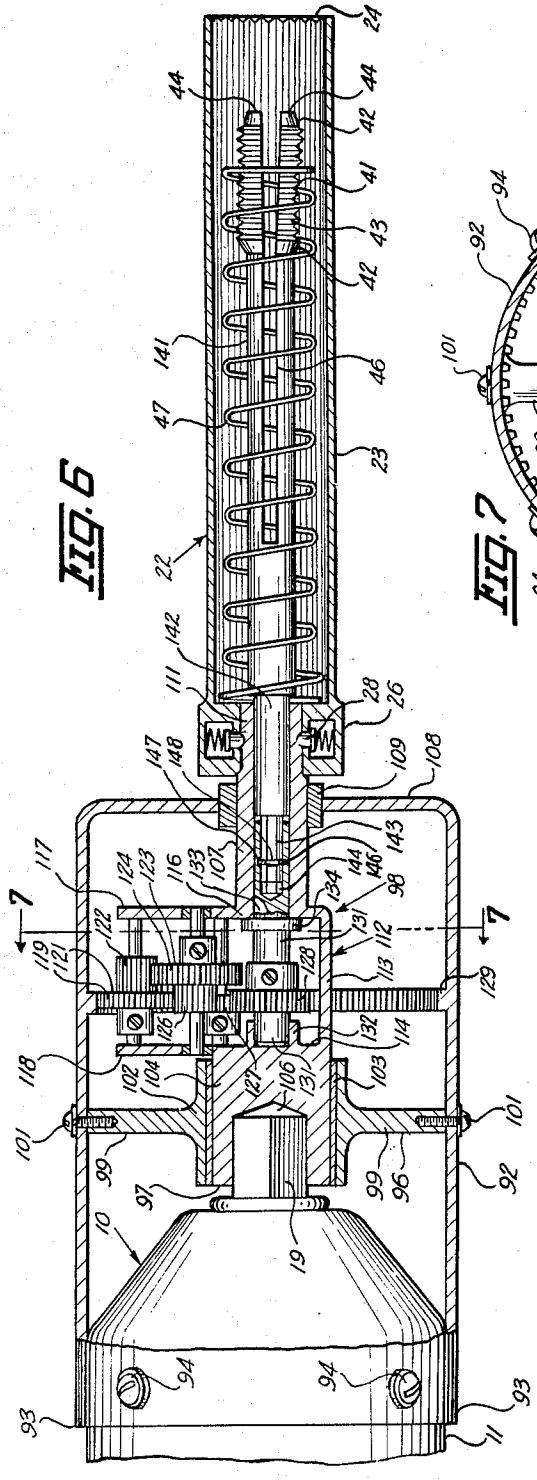


FIG. 6

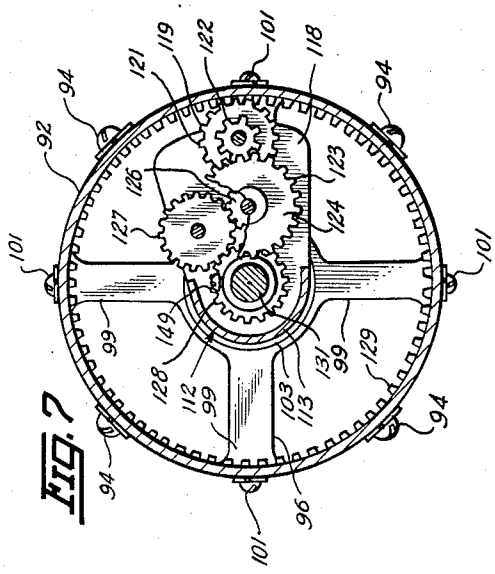


FIG. 7

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2,868,053

MOTOR OPERATED NUT RUNNER PROVIDED WITH MAGAZINE STORAGE MEANS

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Application May 28, 1958, Serial No. 738,423

12 Claims. (Cl. 81—57)

This invention relates generally to socket wrenches and in particular to the combination of a magazine socket with a reversible motor-driven wrench or tool for removing and storing nuts from vehicle wheel studs and for replacing the stored nuts on the wheel studs.

It is an object of this invention to provide an improved motor-operated wrench for removing, storing and replacing nuts on vehicle wheel studs formed with either left or right hand threads.

A further object of this invention is to provide a magazine socket attachment for a motor-driven wrench, that is easily removed from and assembled with the wrench so as to be readily interchangeable with sockets of a standard or well-known type, namely, those which are provided with the wrench.

Another object of this invention is to provide a magazine socket for a motor-operated wrench having a reversible spindle, wherein the magazine socket is rotatable with the spindle and a stem member axially extended through the socket is retained against rotation therewith, so that nuts received within the socket are threadable on the stem member for storage within the socket.

Still another object of this invention is to provide a magazine socket wherein a stem member extended axially of and positioned within the socket is retained against rotation with the socket and has an end portion at the open end of the socket externally threaded and bifurcated or split longitudinally. The bifurcations are yieldably movable toward and away from each other to accommodate nuts of varying size and the threads are of a construction to engage nuts with left or right hand threads.

A further object of this invention is to provide a magazine socket for a reversible motor-driven wrench which is of a simple, compact construction and efficient in operation to handle left or right hand threaded nuts for storage in the socket concurrently with their removal, and to successively release the nuts for replacement.

Further objects, features and advantages of this invention will become apparent from the following description when taken in connection with the accompanying drawing in which:

Fig. 1 is a perspective view of a motor-operated wrench showing the nut engaging stem member in assembly therewith;

Fig. 2 is a side elevational view of a magazine socket and motor-operated wrench assembly with parts broken away and other parts shown in section to more clearly show its construction;

Fig. 3 is a fragmentary rear perspective view of the wrench shown in Fig. 1;

Fig. 4 is a perspective view of a modified form of wrench showing the nut engaging stem member in assembly therewith, with certain parts being broken away and other parts shown in section for the purpose of clarity;

Fig. 5 is a side elevational view of a magazine socket attachment in assembly with wrench of the form shown

in Fig. 1, with parts broken away and other parts shown in section;

Fig. 6 is a longitudinal sectional view of a modified form of magazine socket attachment shown in assembly relation with a motor-operated wrench of the form shown in Fig. 1;

Fig. 7 is a detailed sectional view taken along the line 7—7 in Fig. 6; and

Fig. 8 is a detailed sectional view to an enlarged scale of a portion of Fig. 2.

With reference to the drawing there is shown in Fig. 2 a reversible motor-operated wrench 10 of a well known commercial type having a housing 11 and a grip or handle 12. Extended longitudinally of the housing 11 is a shaft assembly, indicated generally as 13, and including a shaft 14 for a reversible motor 16, a counter shaft 17, a drive shaft 18 and a spindle 19. Reversal of the motor is accomplished by manipulation of a pin lever 21, and starting and stopping of the motor 16 is controlled by a trigger 20 conveniently arranged on the handle 12.

As is usual in wrench of this general type, the power to the spindle 19, from the motor 16 is stalled or slipped in response to a predetermined torque applied to the spindle 19. As mentioned above, this construction and operation of the reversible motor-operated wrench 10 is well known.

The magazine socket, indicated generally as 22 in Fig. 2, includes a body member 23 of a generally cylindrical form that is open at its end 24 and provided at its other end with a socket 26 for engageably receiving the spindle 19 of the wrench 10. For this purpose the spindle 19 (Figs. 1 and 2) is of a square shape in transverse cross section and has a recess or dimple 27 formed on each of its sides, as is more clearly shown in section in Fig. 8. The socket 26 is provided with spring pressed pins 28 that are yieldably received within the dimples 27. The bore 29 of the body member 23 has a side wall of a twelve point or corrugated contour for engaging hexagon nuts 31, four of which are shown in Fig. 2.

Extended axially of the magazine socket 22 and within the bore 29 is a stem member 32 integrally formed with a reduced extension 33 which is rotatably inserted through a bore 25 in the shaft assembly 13 and projected outwardly from the end 34 of the housing 11. As best appears in Figs. 2 and 3, the projected end 36 of the stem member extension 33 is secured to a bracket 37 by a set screw 38, the bracket 37 in turn being fastened to the housing end 34 by screws 39. Thus, as shown in Fig. 2, the stem member 32 is continuously extended through the magazine socket 22, in a concentrically spaced relation with the side wall of the bore 29, and is rotatably inserted through the entire shaft assembly 13 for securement of its projected end 36 to the housing end 34. As a result, the stem member 32 is prevented from rotation with the shaft assembly 13 and magazine socket 22 for a purpose to appear hereinafter.

It is seen, therefore, that the commercially available wrench 10 is unchanged except for the forming of the axially extended bore 25 in the shaft assembly 13 for receiving the extension 33 of the stem member 32. Thus, on removal of the stem member 32, by merely releasing the screw 38, the reversible motor-operated tool is ready for any of its usual intended uses.

The stem member 32, within the magazine socket 22, has an enlarged end section 41, the opposite ends of which terminate in inwardly tapered portions 42 which merge into the outer dimension of the main body of the stem member 32. This enlarged end section 41 is externally threaded, as indicated at 43. The threads 43 are formed by initially being turned left hand, and then finally right hand, or vice versa, the order of turning

being immaterial. As a result the threads 43 are substantially straight, namely, neutral so as to accept either a left or right hand threaded nut.

Additionally, the stem member 32 (Figs. 1 and 2) is diametrically split longitudinally of the threaded end section 41 and into a part of the main body of the stem member 32 so as to form bifurcations 44 on each side of the split 46, having a part of the threads 43 on their outer sides. With the stem member 32 formed of a metal rod material, the splitting thereof provides for the bifurcations 44 assuming a slightly spread apart position, as shown in Fig. 2, but being yieldably movable inwardly toward each other.

A coil spring 47 (Fig. 2) is mounted about the stem member 32, within the magazine socket 22, and is of a normal or unstressed length to extend from the socket 26 to a position intermediate the ends of the enlarged threaded section 41. The spring 47 may merely be inserted within the magazine socket 22, or its inner end 48 may be secured to the socket 26 so as to prevent the spring from falling out of the magazine socket 22.

In use, and with the stem member 32 assembled with the wrench 10, as shown in Fig. 1, the magazine socket 22 is inserted over the stem member 32 and into engagement with the spindle 19 as shown in Figs. 2 and 8. If the spring 47 is not attached to the socket 26, the spring is then placed within the socket magazine 22 and about the stem member 32. The end 24 of the magazine socket 22 is then positioned about a nut to be removed from a stud (not shown) and the magazine is rotated by pressing on the trigger 20 of the impact tool 10. As a nut 31 is removed, and by virtue of the stem member 32 being prevented from rotation with the magazine socket 22, the nut is concurrently threaded upon the enlarged threaded section 41; the yielding action of the bifurcations 44, and the construction of the threads 43, permitting such threaded engagement to take place easily and without any danger of damage to the threads of the nut, regardless of whether such threads are of a left or right hand form. As the nut progresses off of the stem member section 41, the nut engages the end 49 of the spring 47, so that when the nut is free of the threaded section 41, it is biased against the inner tapered portion 42 of such threaded section by virtue of the spring being under compression between the removed nut and the socket portion 26.

The operation for the removal of a second and successive nuts 31 is the same as that described above for the removal of a first nut. As shown in dotted lines in Fig. 2, as the nuts 31 pass from the threaded section 41 of the stem member 32, they are held in a stacked relation on the stem member by the action of the spring 47, so that the last nut removed, indicated at 31*a* in Fig. 2, is yieldably held against the inner end of the threaded section 41.

In the replacement of a nut on a stud, the rotation of the magazine socket 22 is reversed relative to its rotation for nut removal, by actuation of the pin lever 21. The magazine end 24 is then positioned over the stud, and when the trigger 12 is pressed, the reversed rotation of the magazine socket 22 and the biasing action of the spring 47 on the stored nuts 31, provides for the nut, indicated at 31*a* in Fig. 2, being engaged by the threaded section 41 of the stem member 32 and then fed outwardly of the magazine socket 22 for threaded engagement with the stud. This action is repeated on all of the stored nuts 31 until all have been replaced.

In Fig. 4 there is illustrated another form of a commercially available reversible motor-operated wrench, indicated generally as 51. In this form of wrench the casing 52 is comprised of a pair of sections 53 and 54, having holding handles 56 and 57, respectively. The sections 53 and 54 are arranged in a side by side relation, with the section 53 housing a reversible motor 58, the shaft 59 of which is connected through a gear assembly 61 with a drive shaft assembly 62, that includes a spindle 63, the shaft assembly 62 being housed in the section 54.

A stem member 64 is integrally formed with an extension 66 that is rotatably inserted through a bore 65 formed in the shaft assembly 62, and projected outwardly from the housing section 54, as indicated at 67. This projection 67 is secured to the housing section 54 by a set screw 68. The spindle 63 is of a square shape in transverse cross section and has a dimple 69 formed in each of its sides for receiving the spring pressed pins 28 on the magazine socket 22. The stem member 64, outwardly from the spindle 63, is formed in all ways similar to the stem member 32, described in connection with Figs. 1 and 2. Similarly, the spindle 63 cooperates with the magazine socket 22, in all respects similar to the spindle 19. Thus on engagement of the magazine socket 22 with the spindle 63, the operation of the motor-driven wrench 51 for the removal and replacement of nuts, is in all ways similar to the operation of the wrench 10 and magazine socket 22 fully described above in connection with Figs. 1 and 2.

Fig. 5 shows another modified form of the invention. In this form the wrench 10, only the spindle end portion of which is shown, is the same in all respects as the wrench 10 in Figs. 1 and 2. In Fig. 5 a bracket 71 includes a split ring 72 formed with longitudinally extended angularly spaced straps or arms 73. The ends of the arms 73, remote from the ring 72 carry a gear housing 74 having an upstanding lug or boss 76 at one end, positioned between the arms 73 and a cover plate 77 at its opposite end. Within the housing 74 are a pair of meshed gears 78 and 79, having shafts 81 and 82, respectively, rotatably supported in the boss 76. The gear 79 is integrally formed with a spindle 83 that is projected through an opening 84 formed in the cover plate 77. The shaft 81 for the gear 78 is in axial alignment with the spindle 19 and is releasably connectible therewith by a coupling 86. Thus, the spindle 83 on the gear 79 is driven from the spindle 19, through the coupling 86 and the gears 78 and 79. The spindle 83 is of a square shape in transverse cross section and is releasably engageable with the magazine socket 22 in all respects the same as the engagement of the magazine socket 22 with the spindle 19 as described in connection with Fig. 2.

A stem member 87 is formed with an extension 88 of a reduced diameter which is rotatably inserted through the spindle 83, the gear shaft 82 and the boss 76, and is secured to the boss 76 by a set screw 89 so as to be prevented from rotation with the magazine socket 22. The part of the stem member 87 within the magazine socket 22, and the magazine socket 22 in Fig. 5, are of a construction and assembly similar in all respects to the stem member 32 and magazine socket 22 described above in connection with Fig. 2, so that like numbers have been applied to like parts.

In use the bracket 71 is positioned about the spindle end of the reversible motor-operated wrench 10, concurrently with the connecting of the spindle 19 with the gear shaft 81 by the coupling 86. The split ring 72 is then clamped, in a well known manner, about the housing 11 of the wrench 10 by the tightening of a clamping screw 91.

The operation of this form of the invention is similar in all respects to the operation of the embodiment shown in Fig. 2.

The modified form of the invention shown in Figs. 6 and 7 includes the wrench 10 of Figs. 1 and 2, with only the spindle end portion of the wrench 10 being illustrated in Fig. 6. A casing 92 of a generally elongated cup shape has its open end 93 positioned about the spindle end portion of the wrench 10 so as to form on the wrench housing 11, a detachable extension that is releasably secured to the housing by set screws 94, or it may be held manually about the casing 92.

Carried within the casing 92 is a bearing structure 96

for rotatably supporting one end 97 of a coupling unit, indicated generally as 98, for connecting the spindle 19 with the magazine socket 22. The bearing structure 96 is of what might be termed a spider frame construction, having legs 99 secured to the casing 92 by screws 101 and a central hub member 102 provided with a bearing 103.

The coupling unit 98 is of an integral construction and of an elongated irregular shape having at its end 97 a shaft member 104, rotatable in the bearing 103 and formed with a socket 106 for engageably receiving the spindle 19. The oppposite end of the coupling unit 98 has a shaft member 107, of a reduced diameter relative to the shaft member 104, projected outwardly from the closed end 108 of the casing 92 and rotatably supported in a bearing 109 carried in the casing end 108. The projected end of the shaft member 107 is of a square shape in transverse cross section so as to form a spindle 111 for releasable engagement with the socket 26 of the magazine socket 22.

The shaft members 104 and 107 are connected together by a gear supporting frame 112 having a side member 113 extended between and secured to the adjacent ends 114 and 116 of the shafts 104 and 107, respectively, and a pair of parallel spaced side members 117 and 118 radially projected from the shaft members 104 and 107 in a direction away from the side member 113. It is seen, therefore, that the gear supporting frame 112 is of a generally U-shape, wherein the side member 113 is the base, the side member 117 and end 116 of the shaft member 107 is one leg, the side member 118 and the end 114 of the shaft 104 is the second leg, and with such legs being spaced longitudinally of the coupling unit 98.

Arranged within the gear supporting frame is a gear train comprised of a first stepped gear unit 119 having a large gear 121 and a smaller gear 122, a second stepped gear unit 123 having a large gear 124 and a smaller gear 126 and gears 127 and 128. In order, the small gear 122 is in mesh with the large gear 124, the small gear 126 with the gear 127, and finally the gear 127 is in mesh with the gear 128. The large gear 121 is in meshed engagement with an internal ring gear 129 on the casing 92.

The gear 128 is mounted on a shaft 131 in axial alignment with the shaft members 104 and 107 of the coupling unit 98. Gear 128 is secured to shaft 131 by means of a set screw 149. One end of the shaft 131 is supported in a bearing 132 at the end 114 of the shaft member 104, and its opposite end is inserted for support within an axial bore 133 formed in the shaft member 107. The shaft 131 is retained against axial movement by the bearing 132 and by a stop collar 134 that is engageable with the end 116 of the shaft member 107.

The gear train in the supporting frame 112 and the internal ring gear 129 are relatively constructed and arranged to have a high reduction ratio such that on rotation of the coupling unit 98 in either direction, relative to the casing 92, and in turn relative to the housing 11 of the wrench 10, the gears 127 and 128 have a very low rotation rate relative to that of the shaft 107, and with the gear 128 being in axial alignment with the shaft members 104 and 107, and in turn with the spindle 19 for a purpose to appear hereinafter.

As previously described the magazine socket 22 is releasably engaged with the spindle 111, it being understood that this engagement and the construction of the magazine socket 22 and the spindle 111, is the same in all respects as that previously described for the magazine socket 22 and spindle 19 in connection with Fig. 2.

A stem member 141 located within the magazine socket 22 has an extension 142 that terminates in a male connector 143 of a hexagonal shape in transverse cross section. This male connector 143 is releasably engageable within a corresponding socket 144 formed in

the end of the gear shaft 131 that is inserted in the axial bore 133 of the shaft member 107. The releasable engagement of the male connector 143 with the socket 144 is accomplished in a usual manner by the provision of a split ring 146 arranged in a peripheral groove 147 in the side wall of the socket 144 so as to project inwardly of such side wall. The male connector 143 in turn is formed with an annular groove 148 so that on insertion thereof within the socket 144, the spring ring 146 is forced into its retaining groove 147 until met by the groove 148. At such time the ring returns to its normal position so as to rest within both of the grooves 147 and 148 whereby to releasably connect the socket 144 with the male connector 143.

In positioning the stem member 141, therefore, within the socket magazine 22, the extension 142 is inserted within the bore 133 in the shaft member 107 until the male connector 143 is in releasable engagement with the socket 144. That part of the stem member 141, within the magazine socket 22, and the spring 47, are in all ways similar to the corresponding part of the stem member 32 and spring 47 shown in Fig. 2, and previously described. A further description of such parts is thus unnecessary and like numbers have been applied to like parts.

By virtue of the operation of the reduction gear train in the supporting frame 98 and the internal ring gear 129 to provide the gear 128 with a relatively low rotation rate with respect to that of the coupler unit 98, the shaft 131 for the gear 128, and in turn the stem member 141 have a very substantial reduction in speed compared with that of the magazine socket 22. As a result on the removal of nuts by the magazine socket 22, such nuts are concurrently threadable about the stem section 41 for travel into a stored position within the socket magazine 22, with this operation being the same in all respects as the operation described for the form of the invention shown in Fig. 2.

Although the invention has been described with respect to several preferred embodiments thereof, it is to be understood that it is not to be so limited, since changes can be made therein which are within the full intended scope of this invention as defined by the appended claims.

We claim:

1. The combination with a reversible motor-driven wrench having a reversibly rotatable spindle, of a magazine socket including a tubular member, a nut engaging socket formed within one end of said tubular member, means releasably connecting the other end of said tubular member for rotation with said spindle, and a stem member arranged within and extended axially of said tubular member, with one end of said stem member being spaced inwardly from said one end of the tubular member, and means for preventing the other end of said stem member from rotating with said spindle means, with said stem member having a central longitudinally extended slot over the greater portion of the length thereof, and which slot is open to said one end thereof, and with the portions of said stem member on opposite sides of said slot at said one end being formed with external left- and right-hand threads to engage both left hand and right hand threaded nuts.

2. A magazine socket including a rotatable tubular magazine member, a stem member arranged within and extended axially of said tubular member, said tubular member having a nut engaging socket at one end and said stem member having a terminal end within said nut engaging socket spaced from said one end, said stem member being formed with a longitudinally extended diametric slot which is open to said terminal end, and an externally threaded portion on said stem member of a greater diameter than said stem member, located inwardly from said terminal end, with the opposite ends of said threaded portion being tapered down to the diameter of said stem member, and with the threads on

said threaded portion formed left- and right-hand to engage both left and right hand threaded nuts.

3. A magazine socket for a reversible motor-operated wrench having a reversibly rotatable spindle, including a tubular body member open at one end and connectible at its other end with said spindle for rotation therewith, a stem member for receiving nuts in a stacked relation thereon located within and extended axially of said tubular member, with an end section of said stem member terminating inwardly of the open end of said tubular member, and with the opposite end section of said stem member being prevented from rotation with said spindle, said first end section of the stem having a diametric longitudinally extended slot therein so as to split said end section into opposed half portions, external threads on said half portions formed left- and right-hand to engage left and right hand threaded nuts, and a coil spring mounted about said stem member within said tubular member engageable with a nut received on said stem member to apply a yieldable pressure on said nut in a direction toward said open end of the tubular member.

4. In a magazine socket including an elongated rotatable tubular member open at one end and formed with an internal nut engaging socket, a stem member within said tubular member for receiving nuts in a stacked relation thereon, said stem member being extended axially of said tubular member with one end section terminating inwardly from the open end of said tubular member, and the other end of said stem member being prevented from rotation with said tubular member, said one end section, adjacent the terminal end thereof, having an enlarged portion formed with external threads, with the opposite ends of said enlarged portion being tapered down to substantially the diameter of said stem member, said end section, from the terminal end thereof, being formed with a diametric longitudinally extended slot to provide for the parts of said stem member at opposite sides of said slot being yieldably movable toward and away from each other, said external threads being formed left- and right-hand to engage both left and right hand threaded nuts.

5. The combination with a reversible motor-driven wrench having a housing and a reversible rotatable drive shaft, of a magazine socket including an elongated tubular member open at one end and formed at its opposite end with a spindle receiving portion, a nut engaging socket formed within said tubular member, a gear casing retainable stationary with said housing and arranged between said drive shaft and said opposite end of the tubular member, a gear support within said casing having opposite end portions thereof rotatably supported within said casing, with one of said end portions having a spindle thereon insertable within the spindle receiving portion of said tubular member, and the other of said end portions being connectible with said drive shaft, an internal ring gear in said casing in a concentric relation with said drive shaft and tubular member, a gear train carried on said support having one end gear thereof in engagement with said ring gear, a stem member extended axially within said tubular member, having an end section thereof projected through said spindle receiving portion and spindle into said casing, said gear train having the other end gear thereof mounted on a shaft in axial alignment with said stem member, means releasably connecting said stem member and gear shaft, said gear train and ring gear acting to substantially reduce the rotational speed of said stem member with respect to that of said spindle, gear support and tubular member, and a nut engageable threaded portion on the other end section of said stem member adjacent the terminal end thereof, said terminal end being spaced from the open end of said tubular member.

6. The combination with a reversible motor-operated wrench having a housing and a reversible rotatable drive shaft, a magazine socket including an elongated tubular member open at one end and formed at its opposite end with a spindle receiving portion, a gear casing retainable stationary with said housing and arranged between said drive shaft and said opposite end of the tubular member, a coupling unit including a driven spindle for connecting said drive shaft with the opposite end of said tubular member, means rotatably supporting said coupling unit in said casing, a gear train mounted on said coupling unit for rotation therewith, an internal ring gear on said casing, a first gear at one end of said gear train engaged with said ring gear, a second gear at the other end of said gear train arranged in coaxial alignment with said spindle, and tubular member, said gear train and ring gear being relatively constructed so that on rotation of said coupling unit relative to said casing, rotation of said second gear is at a substantially reduced rate compared to that of said spindle, a stem member extended axially within said tubular member with an end section thereof projected through the opposite end of said tubular member and the spindle of said coupling unit for releasable securement to said second gear in axial alignment therewith, and a nut engageable threaded portion on the other end section of said stem member adjacent the terminal end thereof, said terminal end being spaced from the open end of said tubular member.

7. The combination with a reversible motor-driven wrench having a housing and a reversibly rotatable drive shaft at one end of said housing, of a magazine socket having an elongated tubular member having a spindle receiving means at one end and open at the other end thereof, a frame arranged between said housing and said one end of the tubular member arrestable against rotation relative to said drive shaft, means rotatably supported within said frame connected to and extended between said drive shaft and one end of the tubular member for connecting said tubular member for rotation by said drive shaft, a stem member within and extended axially of said tubular member having an end section projected through said one end of the tubular member and a part of said connecting means, means within said frame connected to said one end section of the stem member to substantially reduce the rotational speed of the stem member with respect to that of said tubular member, with that part of the stem member within the tubular member having an externally threaded nut engaging terminal section of an enlarged diameter spaced inwardly from the open end of said tubular member, and formed with a diametric longitudinally extended slot to provide for the yieldable movement toward and away from each other of the stem portions at opposite sides of said slot, and yieldable means within said tubular member engageable with a nut received on said stem member to apply a yieldable pressure on the nut in a direction toward the open end of said tubular member.

8. The combination with a reversible motor-operated wrench having a housing, a reversible spindle and a longitudinally extended drive shaft rotatably supported in said housing and connected to said spindle, of a magazine socket including an elongated tubular magazine member having a spindle receiving means at one end and open at the other end, a stem member having a first end section within said tubular member, and a second end section loosely extended through said spindle receiving means, spindle and drive shaft, means securing the terminal end portion of said second end section of said stem member to said housing, with said first end section having a terminal end portion of an enlarged diameter formed with external threads for engaging a nut, and with the terminal end portion of said first end section being formed with a diametric longitudinally extended slot to provide for yieldable movement toward and away from each other of the stem portions at opposite sides of said slot, and yieldable means within said tubular member engageable with a nut received on said stem member to apply a yield-

able pressure on the nut in a direction toward the open end of said tubular member.

9. The combination with a reversible motor-driven wrench having a reversibly rotatable spindle, of a magazine socket including a rotatable tubular member having one end driven by said spindle, a nut engaging socket formed within the other end of said tubular member, and a stem member arranged within and extended axially of said tubular member, with one end of said stem member being spaced inwardly from said other end of the tubular member, and means to secure a high ratio of rotational speeds between said spindle and said stem member, with said stem member having a central longitudinally extended slot over the greater portion of the length thereof, and which slot is open to said one end thereof, and with the portions of said stem member on opposite sides of said slot at said one end being formed with external left- and right-hand threads to engage both left hand and right hand threaded nuts.

10. The combination with a reversible motor-driven wrench having a reversibly rotatable spindle, of a magazine socket including a rotatable tubular magazine member driven thereby, a stem member arranged within and extended axially of said tubular member, and means to provide a high ratio of rotational speeds between said tubular member and said stem member, said tubular member having a nut engaging socket at one end and said stem member having a terminal end within said nut engaging socket spaced from said one end, said stem member being formed with a longitudinally extended diametric slot which is open to said terminal end, and an externally threaded portion on said stem member of a greater diameter than said stem member, located inwardly from said terminal end, with the opposite ends of said threaded portion being tapered down to the diameter of said stem member, and with the threads on said threaded portion formed left- and right-hand to engage both left and right hand threaded nuts.

11. The combination with a reversible motor-driven wrench having a reversibly rotatable spindle, of a magazine socket including a rotatable tubular magazine member driven thereby, a stem member arranged within and extended axially of said tubular member, and means maintaining the rotational speed of said stem member low with respect to that of said tubular member, said tubular member having a nut engaging socket at one end and said stem member having a terminal end within said nut engaging socket spaced from said one end, said stem member being formed with a longitudinally extended diametric slot which is open to said terminal end, and an externally threaded portion on said stem member of a greater diameter than said stem member, located inwardly from said terminal end, with the opposite ends of said threaded portion being tapered down to the diameter of said stem member, and with the threads on said threaded portion formed left- and right-hand to engage both left and right hand threaded nuts.

12. In a motor-driven magazine socket wrench including an elongated rotatable tubular member open at one end and formed with an internal nut engaging socket, a stem member within said tubular member for receiving nuts in a stacked relation thereon, said stem member being extended axially of said tubular member with one end section terminating inwardly from the open end of said tubular member, and means securing the other end of said stem member and providing a high ratio of rotational speeds between said stem member and said tubular member, said one end section, adjacent the terminal end thereof, having an enlarged portion formed with external threads, with the opposite ends of said enlarged portion being tapered down to substantially the diameter of said stem member, said end section, from the terminal end thereof, being formed with a diametric longitudinally extended slot to provide for the parts of said stem member at opposite sides of said slot being yieldably movable toward and away from each other, said external threads being formed left- and right-hand to engage both left and right hand threaded nuts.

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